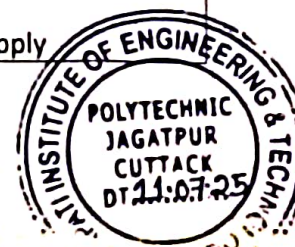


LESSON PLAN OF 5TH SEMESTER (2025-26) CIVIL ENGINEERING

Discipline :- CIVIL Engg.	Semester:-5TH	Name of the Teaching Faculty JAYALAXMI BEHERA(LECTURER)
Subject:- WS&WWE (Th.4)	No of Days/per Week Class Allotted :-03	Semester From:- <u>14/07/2025</u> To:- <u>15/11/2025</u>
Week	Class Day	No of Weeks:- 18 Theory/ Practical Topics
1 st	1 st	1.1 Necessity of treated water supply 1.2 Per capita demand, variation in demand and factors affecting demand
	2 nd	1.3 Methods of forecasting population, Numerical problems using different methods 1.4 Impurities in water – organic and inorganic, Harmful effects of impurities
	3 rd	1.5 Analysis of water –physical, chemical and bacteriological 1.6 Water quality standards for different uses
2 nd	1 st	2.1 Surface sources – Lake, stream, river and impounded reservoir
	2 nd	2.2 Underground sources – aquifer type & occurrence – Infiltration gallery, infiltration well, springs, well
	3 rd	2.3 Yield from well- method s of determination, Numerical problems using yield formulae (deduction excluded)
3 rd	1 st	2.4 Intakes – types, description of river intake, reservoir intake, canal intake
	2 nd	2.5 Pumps for conveyance & distribution – types, selection, installation.
	3 rd	2.6 Pipe materials – necessity, suitability, merits & demerits of each type 2.7 Pipe joints – necessity, types of joints, suitability, methods of jointing Laying of pipes –method.
4 th	1 st	1. Design of treatment units excluded.
	2 nd	2. Students may be asked to prepare detailed sketches of units, preferably from working drawing, as home assignment
	3 rd	3. Field visit to treatment plant, under practical should be arranged after covering this unit.
5 th	1 st	3.1 Flow diagram of conventional water treatment system
	2 nd	3.2 Treatment process / units : 3.2.1 Aeration ; Necessity
	3 rd	3.2.2 Plain Sedimentation : Necessity, working principles, Sedimentation tanks – types, essential features, operation & maintenance
6 th	1 st	3.2.3 Sedimentation with coagulation: Necessity, principles of coagulation, types of coagulants, Flash Mixer, Flocculator, Clarifier (Definition and concept only)
	2 nd	3.2.4 Filtration : Necessity, principles, types of filters Slow Sand Filter, Rapid Sand Filter and Pressure Filter – essential features
	3 rd	3.2.5 Disinfection : Necessity, methods of disinfection Chlorination – free and combined chlorine demand, available chlorine, residual chlorine, pre-chlorination, break point chlorination, super-chlorination
7 th	1 st	3.2.6 Softening of water – Necessity, Methods of softening – Lime soda process and Ion exchange method (Concept Only)
	2 nd	4.2 Methods of supply – intermittent and continuous
	3 rd	4.3 Distribution system layout – types, comparison, suitability 4.4 Valves-types, features, uses, purpose-sluice valves, check valves
8 th	1 st	Air valves, scour valves, Fire hydrants, Water meters 5.1 Method of connection from water mains to building supply



	2 nd	5.2 General layout of plumbing arrangement for water supply in single storied and multi-storied building as per I.S. code. 6.1 Aims and objectives of sanitary engineering
	3 rd	6.2 Definition of terms related to sanitary engineering
9 th	1 st	6.3 Systems of collection of wastes– Conservancy and Water Carriage System – features, comparison, suitability
	2 nd	7.1 Quantity of sanitary sewage – domestic & industrial sewage, variation in sewage flow.
	3 rd	Numerical problem on computation quantity of sanitary sewage.
10 th	1 st	7.2 Computation of size of sewer, application of Chazy's formula
	2 nd	Limiting velocities of flow : self-cleaning and scouring
	3 rd	7.3 General importance, strength of sewage, Characteristics of sewage-physical, chemical & biological
11 th	1 st	7.4 Concept of sewage-sampling, tests for – solids, pH.
	2 nd	7.4 Concept of sewage-sampling, tests for – dissolved oxygen BOD, COD
	3 rd	8.1 Types of system-separate, combined, partially separate
12 th	1 st	features, comparison between the types, suitability
	2 nd	8.2 Shapes of sewer – rectangular, avoid-features, suitability circular, avoid-features, suitability
	3 rd	8.3 Laying of sewer-setting out sewer alignment
13 th	1 st	9.1 Manholes and Lamp holes – types,
	2 nd	features, location, function
	3 rd	9.2 Inlets, Grease & oil trap – features, location, function
14 th	1 st	9.3 Storm regulator, inverted siphon – features, location, function
	2 nd	9.4 Disposal on land – sewage farming, sewage application and dosing
	3 rd	sewage sickness-causes and remedies
15 th	1 st	9.5 Disposal by dilution – standards for disposal in different types of water bodies, self purification of stream
	2 nd	10.1 Principles of treatment, flow diagram of conventional treatment
	3 rd	10.2 Primary treatment – necessity principles, essential features, functions
16 th	1 st	10.3 Secondary treatment – necessity
	2 nd	principles, essential features, functions
	3 rd	11.1 Requirements of building drainage. layout of lavatory blocks in residential buildings.
17 th	1 st	layout of building drainage
	2 nd	11.2 Plumbing arrangement of single storied as per I.S. code practice
	3 rd	11.3 Sanitary fixtures – features, function maintenance and fixing of the fixtures – water closets, flushing cisterns
18 th	1 st	urinals chambers, traps, anti-syphonage pipe, inspection
	2 nd	Discussion
	3 rd	problem practice previous year question discussion

M. J.
11.07.25
LECTURER

[Signature]
PRINCIPAL 11/7/25

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